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BIOCHEMICAL COMPOSITION OF CEREAL GRAIN UNDER DIFFERENT CULTIVATION TECHNOLOGIES IN THE LEFT-BANK FOREST-STEPPE OF UKRAINE

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ABSTRACT

Rational use of natural resources and the implementation of environmentally safe technologies for cultivating cereal crops are gaining particular importance in modern agricultural production under climate change. Ensuring the high quality and safety of grain products requires scientifically grounded approaches to shaping their biochemical composition, especially in the regions with high agrarian potential, such as the Left-Bank Forest-Steppe of Ukraine. This article presents the results of long-term field and laboratory studies aimed at determining the impact of different cultivation technologies (traditional, organic, biological, and mixed) on the biochemical composition of the main cereal crops (winter wheat, spring oat, spring barley, and winter rye) under the conditions of the Left-Bank Forest-Steppe of Ukraine. It has been demonstrated that biological and organic technologies contribute to an increase in the content of protein, fats, and mineral substances, while also reducing the level of plant infection, thereby enhancing environmental safety and ensuring the quality of grain products. An inverse correlation between protein and starch content in grain has been established, as well as a direct relationship between starch content and the level of ear infection. The effectiveness of the study lies in providing a comprehensive assessment of the biochemical parameters of grain depending on the cultivation technology, which allows the optimization of agronomic approaches to improve the quality and safety of grain products. The practical value of the research lies in the implementation of environmentally safe cultivation technologies for cereal crops to enhance the competitiveness of Ukrainian grain. The theoretical value of the study lies in deepening knowledge of the interaction between grain, agronomic practices, and phytopathogenic pressure, which forms the scientific basis for sustainable farming systems. The results of the research are particularly relevant under global climate change and the growing demand for safe, high-quality grain products.

Keywords: biochemical composition, crop cultivation technologies, winter wheat, spring oat, spring barley, winter rye, phytopathogenic micromycetes, environmental safety, organic production, biological technology, traditional technology, protein content, starch, mycotoxins, agroecosystems, sustainable development.

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SOME CHEMICAL PARAMETERS FOR THE WATER OF LAKE BUTRINT IN TWO AREAS OF CULTIVATION OF MUSSEL (*M. GALLOPROVINCIALIS* LAMARCK, 1819)

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ABSTRACT

In the period from June 2023 to May 2024, water was analyzed in two locations where mussels were cultivated in Lake Butrint for five chemical indicators. The average annual content for chlorophyll *a* in the lake area of Manastir was 2.013±1.113 µg/L while in the lake area in front of the "Mussel House" it was 1.947±1.225 µg/L. The average annual values for the concentration of dissolved oxygen in the water for these two locations were respectively 7.02±1.027 mg/L and 7.21±1.039 mg/L. A positive correlation was found between the contents of chlorophyll- *a* and oxygen (r=0.803, for the Manastir area and r=0.749, for the "Mussel House" area). Mussels"). The annual average concentration for the parameter POM, mg/L was 3.72±1.761 mg/L, for the area of Manastir and 3.36±1.698 mg/L, for the area of the "Mussel House". For these two areas we found the corresponding average concentrations for phosphates (PO_4^{3-}, mg/L): 0.0752±0.040 mg/L and 0.0882 mg/L as well as ammonium (NH_4^+, mg/L): 0.0146±0.0046 mg/L and 0.0179±0.0077 mg/L.

Keywords: chemıcal parameters, water of Lake Butrınt, area, mussel, *m. gallooprovıncıalıs* lamarck, 1819.

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ENVIRONMENTAL AND AGRICULTURAL IMPACTS OF TEMPORAL CHANGES IN LAND USE LAND COVER IN EBONYI STATE SOUTHEASTERN NIGERIA

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ABSTRACT

This study investigates the environmental and agricultural impacts of temporal changes in land use land cover in Ebonyi State Southeastern Nigeria using geospatial techniques (LULC data and remote sensing database) covering a period 39 years (1986 to 2025). Land use Land cover (LULC) analysis is used to assess and categorize changes that have occurred in the study area within the past 39 year's period. This study aims to investigates the environmental and agricultural impacts of temporal changes in land use land cover in Ebonyi State Southeastern Nigeria using geospatial techniques (LULC data and remote sensing database) covering a period 39 years (1986 to 2025). The results show that Bareland increased from 1.16 km^2 in 1986 to 11.76km^2 in 2025 representing an increase of +630%. Water bodies increased from 14.25km^2 in 1986 to 18.91km^2 in 2025 representing an increase of +33%. Built-up area increased from 27.90km^2 in 1986 to 46.66km^2 in 2025 representing an increase of +67%. Forest decreased from 933.54km^2 in 1986 to 618.69km^2 in 2025 representing a decrease of -34%. Cultivated area increased from 1364.69km^2 in 1986 to 3990.67km^2 in 2025 representing an increase of +192%, and Shrubland decreased from 4083.26km^2 in 1986 to 1738.56km^2 in 2025 representing a decrease of -57.42%. Thus the largest increase is bareland (+630%) followed by cultivated area (+192%), and the largest decrease is shrubland (-57%) followed by forest (-34%). We therefore call on stakeholders particularly governments at the state and local levels to exercise restraint and apply discretion in land acquisition for development purposes as most acquisitions were not put to right use thereby negating sustainable land use practices. Land should be seen as a valuable asset upon which the survival of man and other forms of life depend, so sustainable use of land and forest resources should be made a critical aspect of government policies where citizens will be enlightened on best practices in land use and land management, adaptation of climate change mitigating actions to preserve the ecosystem and livelihoods. Government is further enjoined to monitor and properly regulate the activities of miners to strengthen environmental sustainability measures in the state.

Key words: Temporal changes, Environment, Impacts, Agriculture, Ebonyi State, LULC.

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UNDERSTANDING HIV/AIDS: KNOWLEDGE GAPS AND MISCONCEPTIONS ACROSS UNIVERSITIES AND STUDY YEARS

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ABSTRACT

Despite significant advances in HIV/AIDS treatment and prevention, misconceptions about transmission, prevention, and treatment remain widespread among young people, including university students. Myths such as transmission via mosquito bites or casual contact continue to undermine public health efforts and fuel stigma. This study aimed to assess HIV/AIDS-related knowledge and identify misconceptions among Albanian university students, with a focus on differences across academic years and university programs. A cross-sectional survey was conducted in May 2025 among 430 students from Aleksandër Moisiu University of Durrës and the University of Medicine, Tirana. A 45-item validated HIV/AIDS knowledge questionnaire was administered, covering three dimensions: (1) Concepts and Misconceptions, (2) Transmission and Non-Transmission Routes, and (3) Prevention, Testing, and Treatment. Psychometric validation included exploratory factor analysis and reliability testing (Cronbach's alpha = 0.876). Descriptive statistics and ANOVA were used to analyze knowledge scores across universities and study years. The overall mean knowledge score was 65.96% (SD = 18.61). Students performed best in Concepts and Misconceptions (68.16%) and worst in Prevention, Testing, and Treatment (63.9%). Misconceptions about non-transmission routes (e.g., toilets, mosquito bites, saliva) were common, with 66.4% incorrectly believing in mosquito transmission. Fifth-year students scored significantly higher across all domains ($p < 0.001$), particularly in Concepts and Misconceptions (87.0%). Faculty of Dentistry students outperformed peers from other faculties ($p < 0.001$), highlighting the role of health-related curricula. While students show reasonable awareness of HIV/AIDS, substantial misconceptions persist, especially regarding ineffective prevention methods and non-transmission scenarios. Structured, multi-year educational interventions tailored to university settings are essential to address these gaps, reduce stigma, and promote evidence-based prevention behaviors.

Keywords: HIV/AIDS, student knowledge, misconceptions, transmission, stigma, Albania, health education, prevention.

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HONEY PRODUCTION AND CONSUMPTION IN ALBANIA: ALIGNING CONSUMER PERCEPTIONS, BEEKEEPER PRACTICES, AND POLICY

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ABSTRACT

Honey is an important product in Albania, valued for its authenticity, nutritional benefits, and cultural role. This study investigates the alignment between consumer perceptions, beekeeper practices, and policy frameworks. Two questionnaires were conducted between January and June 2025: one with consumers and another with beekeepers. Consumers showed a strong preference for local honey, most often purchased directly from beekeepers, but younger groups reported infrequent use. Beekeepers were mainly professionals managing medium- to large-scale apiaries and applying systematic hive management, though gaps remain in certification, traceability, and organic production. Both groups expressed interest in organic honey, highlighting market potential. Strengthening certification and labeling systems, expanding training in organic production, and promoting honey's health benefits could improve consumer trust, align supply with demand, and support sustainable growth of the Albanian honey sector.

Keywords: Honey, beekeeping practices, consumer perceptions, food safety, policy alignment.

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THE CLIMATE CHANGE DIVIDE: DIFFERENTIAL IMPACTS ON ECONOMIC GROWTH, AGRICULTURE, AND ENERGY IN DEVELOPED AND DEVELOPING NATIONS

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ABSTRACT

Climate change poses a pervasive threat to global economic stability, yet its impacts are profoundly uneven across sectors and national economies. This study provides a comprehensive, empirical analysis of these differential impacts, quantifying the effects on key economic indicators and evaluating adaptive capacities. Using a fixed-effects panel data model for 2000-2023 and complemented by case studies of coastal infrastructure, we analyze climate and economic data from a global sample of countries. Our results indicate that a 1°C increase in average annual temperature reduces annual GDP growth by 0.5% on average, with losses escalating to 1.2% for low- and middle-income countries compared to 0.3% for high-income countries. Sectorally, agricultural yields for wheat and rice decline by 5.2% and 6.8% per 1°C, respectively, while energy demand increases by 2.3%. Economic losses from flooding average 1.8% of GDP, exceeding 3.9% in vulnerable coastal nations like Bangladesh. A comparative resilience index reveals that adaptive capacity is strongly correlated with economic development, with developed countries scoring 85/100 compared to 44/100 for developing nations. The findings underscore that climate change exacerbates global inequality by disproportionately affecting vulnerable economies with limited adaptive resources. We conclude that effective mitigation requires internationally coordinated policies that integrate climate adaptation into economic planning, prioritizing investment in resilient infrastructure, renewable energy, and agricultural innovation in the most vulnerable regions.

Keywords: vulnerability, resilience index, climate change, global warming, adaptation, sustainable development, energy sector.

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ENVIRONMENTAL CRIMINAL OFFENCES IN ALBANIA AND THE ROLE OF CRIMINOLOGY IN THE DEVELOPMENT OF PREVENTIVE STRATEGIES: A CASE STUDY

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ABSTRACT

The environment in which we live is one of the most significant factors that influences the quality of our lives. Clean air, greenery, and clean water have a direct impact on the well-being and health of the planet's green creatures. On the other hand, criminologists believe that the environment plays a significant role in both committing and deterring the commission of criminal offenses. Polluted air or a lack of greenery can affect an individual's psycho-social state, making them more prone to engaging in illegal behavior. Consequently, all states must punish those criminal behaviors that harm the environment surrounding us. In this context, the Criminal Code of the Republic of Albania encompasses a range of criminal offenses primarily aimed at protecting the environment. Environmental crimes, their causes, perpetrators, and the consequences they produce, are the subject of study not only by criminal law but also by the science of criminology. Criminological studies in the context of environmental protection have been stimulated by the growing attention to environmental issues and the need to combat crimes such as industrial pollution, waste trafficking, or even illegal deforestation. Through this paper, we will analyze the external behaviors that damage the environment, punishable by Albanian criminal legislation, as well as the efforts made in this context to prevent and combat these behaviors.

Keywords: environment, health, criminology, criminal law, criminal policy, prevention.

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ANALYZING THE ENVIRONMENTAL AND SOCIAL IMPLICATIONS OF DIGITAL TRAVEL BEHAVIOR: THE RISE OF THE SMART TOURIST

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ABSTRACT

The rapid digitalization of tourism, accelerated post-COVID-19, is fundamentally transforming tourist behavior. While this shift offers efficiency, its implications for the sustainability of the tourism sector—encompassing environmental, social, and economic dimensions—remain critically understudied. This research investigates how digital factors influence the consumption patterns of international tourists and evaluates the resultant sustainability outcomes. Utilizing a mixed-methods approach, this study combined quantitative survey data from tourists with qualitative analysis of secondary data from international organizations. The research design systematically analyzed the digital ecosystem (e.g., social media, booking platforms, review sites) and its impact on tourist decision-making across the entire travel journey: pre-trip, during-trip, and post-trip. The study identifies the emergence of a "SMART tourist," who extensively uses digital tools for trip planning, execution, and sharing. While this autonomy can lead to more dispersed travel patterns, it also creates a powerful "Tourist Information System" (TIS) that amplifies trends, potentially leading to overtourism at digitally popularized sites. Findings indicate that 80% of tourists rely on digital tools, with 45% using them throughout the entire decision-making process. The TIS often prioritizes convenience and trends over sustainability metrics, rarely highlighting ecological footprints or local community benefits. The digital transformation of tourism presents a paradox: it empowers tourists but risks exacerbating unsustainable consumption patterns through algorithmic amplification. The study concludes that for tourism to align with sustainable development goals, a deliberate effort is needed to integrate sustainability information into the digital platforms and the TIS that guide the SMART tourist. This research provides a framework for understanding this dynamic and offers strategic insights for policymakers and destination managers seeking to harness digitalization for sustainable tourism development.

Keywords: sustainable tourism; SMART tourist; overtourism; sustainable consumption.

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THE TOTAL PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITY OF ALBANIAN HONEY SAMPLES

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ABSTRACT

This study investigated the antioxidant potential and phenolic composition of 33 honey samples collected from diverse regions of Albania. The antioxidant capacity was evaluated using the DPPH radical scavenging assay, while total phenolic content (TPC) was determined spectrophotometrically and expressed as gallic acid equivalents (GAE/100 g). DPPH inhibition ranged from 24.34% to 91.01%, whereas TPC varied between 16.98 and 223.83 mg GAE/100 g. A moderate positive correlation (r = 0.39) was observed between TPC and antioxidant activity, suggesting that phenolic compounds play a significant but not exclusive role in the antioxidant properties of honey. Regional and botanical differences were evident, with multifloral and darker honeys exhibiting higher TPC values. These findings highlight the influence of floral and geographical origin on the bioactive potential of Albanian honey and underline its relevance as a functional food.

Keywords: Honey; total phenolic content, antioxidant activity, DPPH, Albania.

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DIAGNOSIS OF *VERTICILLIUM NUBILUM* FUNGUS PHENOTYPICALLY AND MOLECULARLY, THE EFFECTIVENESS OF *TRICHODERMA HARZIANUM* AND *BACILLUS SUBTILLIS* IN INHIBITING IT IN THE LABORATORY

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ABSTRACT

The study aimed to diagnose the fungus Verticillium nubilum and evaluate the effectiveness of some biological factors represented by the Trichoderma harzianum fungus and the Bacillus subtillis bacteria against the pathogen under laboratory conditions.The results of the migration of the polymerase chain reaction (PCR) on an agarose gel showed a band of 500-650bp in size for the Verticillium nubilum fungus.The results also showed a high antagonism between the fungus V.nubilum, the fungus Trichoderma harzianum, and the bacteria Bacillus subtillis compared to the control treatment, which amounted to 0.0%. The treatment with the bacterium Bacillus subtilis gave the highest percentage of inhibition against the pathogenic fungus, reaching 96.75%, followed by the treatment with the biological fungus Trichoderma harzianum. It reached 91.07%.

Keywords: *Verticillium nubilum,* inhibition, fungs.

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A CORELATION BETWEEN THE VIRUS OF HEPATITIS B AND BLOOD DONORS IN GJIROKASTRA AREA, ALBANIA

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ABSTACT

Hepatitis of type B still remain a big problem in Albania. Carriers of hepatitis B surface antigene HbsAg are considered to be chronic carriers of HBV and are the main reservoir for the infection. In Albania the vaccine against hepatitis B has been introduced in the calendar of vaccination for the last 15 years. Its use is advised in the first days after the child is born and is repeated in the 2-nd and 6-th month. But the risk of the development of chronic hepatitis is still of a high level. In this study, 952 blood donors have been examined during the period January 2022 until December 2024, in the regional hospital "Omer Nishani" Gjirokaster; in order to see the frequence of positivity of Hepatitis B surface antigene HBsAg. Results showed that 13 % of the donors are HBsAg positive so they carry this antigene in their plasma. These results indicate that positivity of hepatitis B surface antigene HBsAg in the blood donors is of high level. Since the positivity of hepatitis B surface antigene has a high level of spread and parenteral way plays an important role in the transmission of the hepatitis B infection in Albania, the completion of more detailed serologic tests for the sure determining of the presence of hepatitis B surface antigene HBsAg, is indispensable.

Key words: hepatitis B, HBsAg, donor, carrier, vaccine, frequence.

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GREEN CONSUMER BEHAVIORAL INTENTIONS IN THE SUSTAINABLE HOSPITALITY AND TOURISM SECTOR: A CITATION SPACE-BASED VISUAL ANALYSIS WITH AN EMPHASIS ON ENVIRONMENTAL FACTORS

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ABSTRACT

This study offers a comprehensive synthesis of the scholarly landscape concerning green consumer behavioral intentions within the domains of green hospitality and sustainable tourism. It identifies prevailing trends, leading contributors, and prospective research trajectories. A bibliometric analysis was conducted on 675 articles published between 1996 and July 2025, sourced from the Web of Science and Scopus databases. CiteSpace software was used to generate visualizations of author collaboration networks, citation clusters, keyword bursts, and thematic development timelines. The analysis reveals a substantial increase in publications over the last decade, with a strong prevalence of the Theory of Planned Behavior (TPB) and the Value–Belief–Norm Theory (VBN). Recent research trends indicate a shift toward multi-level models incorporating emotional, institutional, and post-consumption behavioral factors. East Asia emerges as a leading contributor in terms of research output and academic influence, while other regions remain underrepresented. This study represents the first application of CiteSpace to systematically map research on green behavioral intentions in the hospitality industry. It offers fresh insights into theoretical evolution, pinpoints critical research gaps, and proposes strategic directions for future inquiry, thereby contributing to the advancement of sustainable tourism and green consumption practices.

Keywords: Green consumer behavior, green hotel, Environmental Factors, Sustainable tourism.

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UTERINE INFLAMMATORY PROFILE AND ENDOCRINE STRESS IN MARES : TOWARD AN INTEGRATED PREDICTIVE APPROACH

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ABSTRACT

This study investigates the correlations between uterine and clitoral cytobacteriological profiles, hormonal dynamics, and biochemical markers of inflammation and hemostasis in 13 mares to identify predictive indicators of uterine inflammation. Uterine and clitoral swabs were analyzed for leukocyte presence, bacterial load, and Gram staining characteristics. Hormonal assays included estradiol-17β, progesterone, anti-Müllerian hormone (AMH), and cortisol. Biochemical parameters measured were procalcitonin, ultra-sensitive C-reactive protein (CRP), and fibrinogen. Statistical analyses encompassed Pearson and Spearman correlations, ANOVA, and multivariate linear regression. All mares exhibited leukocytic infiltration in uterine samples, whereas clitoral samples demonstrated minimal inflammatory signs. Cortisol concentrations were significantly elevated in mares with uterine inflammation ($p < 0.001$), suggesting a robust association between stress and endometrial immune activation. CRP and fibrinogen displayed moderate correlation ($r = 0.45$, $p = 0.07$), indicating localized inflammatory responses. Estradiol and progesterone concentrations failed to predict bacterial load or leukocyte presence significantly. Cortisol emerges as a pivotal biomarker associated with uterine inflammation in mares, while other hormonal and biochemical markers demonstrate limited predictive value. These findings support the integration of endocrine and inflammatory profiling for early detection and management of equine endometritis.

Keywords : Equine endometritis, cortisol, cytobacteriological profile, biomarkers, reproductive health, Algeria.

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EXPLORING THE APPLICATION OF THE PERMA MODEL IN TOURISM RESEARCH OVER THE PAST 5 YEARS (2020-2025): A THEMATIC REVIEW OF WELLBEING AND TOURISM DEVELOPMENT

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ABSTRACT

The PERMA model provides a comprehensive framework for assessing tourist wellbeing by integrating both hedonic and eudaimonic dimensions. The limited application of the PERMA framework in tourism research, especially in addressing cultural variability, emotional complexity, and processual aspects of wellbeing has become a growing concern among scholars. Additionally, longitudinal and context-sensitive approaches are needed to examine how these wellbeing elements influence tourist behaviours and experiences, and contribute to lasting psychological wellbeing throughout diverse tourism contexts. This study evaluates articles published between 2020 and 2025 to explore the application of the PERMA model in tourism studies. Utilizing a thematic review methodology, this research incorporates keywords from the SCOPUS and WoS databases. The thematic review analysis reveals two key themes. The findings offer practical insights for designing inclusive and sustainable tourism experiences. Notably, this study identifies a significant gap in the application of the PERMA model and wellbeing research within tourism contexts. Addressing this gap can inform policy development, tourism management, and future research with the ultimate goal of enhancing both individual and collective wellbeing through tourism.

Keywords: PERMA model, Thematic review, Wellbeing, Tourism development.

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ASSESSMENTS ON HEALTHCARE FOR OVERWEIGHT CHILDREN AND SPECIFIC ISSUES ON OBESITY: A CASE STUDY IN THE GJIROKASTER AREA, ALBANIA

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ABSTRACT

Obesity is considered an abnormal condition of the body, with serious and often irreversible health consequences, and multidimensional negative impacts on all aspects of life. Obesity is a concern in developed countries, but today it is increasingly recognized as a dramatic issue not only in developed nations but also as a growing negative phenomenon in middle- and low-income countries. The only places in the world where obesity is not a common feature of the population's lifestyle are Sub-Saharan African countries, which are marked by vital deficiencies in the nutrition of their populations. Even in our country, particularly after the 1990s, with the shift to a market economy, the rise of free enterprise in food production, and the influx of a wide variety of imported food products, this phenomenon has seen a marked increase-especially in urban areas, where changes in living standards and industrialization are more pronounced. A worrying trend is the increasing occurrence of overweight and obesity starting from childhood. Obesity is a serious metabolic disorder.

Key words: assessments, healthcare, overweight children, obesity, Gjirokaster area, Albania.

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AIR POLLUTION IN BANGLADESH: A SYSTEMATIC REVIEW OF TRENDS, HEALTH IMPACTS AND POLICY RESPONSES

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ABSTRACT

Purpose: Air pollution is a serious issue for the environment and public health in Bangladesh. The fast growth of industries, urban areas and use of fossil fuels has risen in fine particulate matter (PM2.5) levels which exceed global air quality standards. This study focused at trends in air pollution, its health and economic effects, the main sources of pollution and how effective current policies are in Bangladesh. *Methodology:* A systematic review approach was used to collect and analyze data from 38 academic and institutional sources. The study employed a two-round screening process to refine relevant studies. Key data points were extracted on air quality trends, health consequences, economic costs and policy responses. The analysis has incorporated long-term air pollution trends, mortality rates, GDP loss and policy effectiveness. *Findings:* PM2.5 levels in Bangladesh, particularly in Dhaka have increased significantly by reaching 106 µg/m³ in 2021 which is far exceeding the WHO-recommended limit of 5 µg/m³. Air pollution causes over 200,000 early deaths each year. In Dhaka, it shortens life expectancy by more than eight years. Health impacts include respiratory and cardiovascular diseases, with children being the most vulnerable. The economic impact of air pollution in Bangladesh is significant. Healthcare costs and lost productivity related to air pollution are around $11 billion each year, which is about 4.4–4.8% of the country's GDP. The main sources of pollution include brick kilns, vehicle emissions, industrial activities, construction dust and pollution from neighboring countries. Bangladesh has implemented regulations such as the Air Pollution Control Rules 2022 and the National Air Quality Management Plan (NAQMP) for the years 2024 to 2030. However, the enforcement of these regulations is still remain insufficient and there is a lack of effective measures to address pollution which are originating from neighboring countries. *Conclusion:* Air pollution in Bangladesh is a growing crisis that requires urgent intervention. Effective enforcement of regulations, modernization of brick kilns, improvement in vehicle emission standards and regional cooperation are crucial steps to take. Expanding air quality monitoring, raising public awareness and implementing economic incentives can further mitigate the pollution. A multi-sectoral and long-term strategy is essential to keep public health better and ensure sustainable development.

Keywords: Air pollution; Bangladesh; PM2.5; public health, economic cost; policy effectiveness; environmental sustainability; air quality management.

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ANALYSIS OF THE SCALE OF LABORATORY VALUES AND REFERENCE VALUES: AN OPPORTUNITY FOR NEW APPLICATIONS AND INNOVATIONS FOR THE QUALITY OF HEALTHCARE

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ABSTRACT

The concepts of populations and referent values are classical, irreplaceable, and very useful in our practice. On the other hand, cut-off values, clinical decision limits, critical values, biological variation by target groups, diagnostic criteria, viewing laboratory data as indicator of risks, monitoring, prognosis, medical decision factors, evaluation of them not only from dichotomous point of view, such as normal or pathological laboratory values, but and that some values serves as "pit stops" of stages of diseases, are important to reevaluate or repeat our results from lab staff, to report "on call" critical value, to diagnose, screen and treat better and faster our patients. Conclusion. So, we propose using more and more concept of escalation of values of laboratory exams, where these escalations orient multidisciplinary teams to make quickly better decisions in favor of the patients. Escalation of laboratory values give additional information of lab values, together with reference values, decrease medical errors, increase interaction of team works and so quality of health care. This would be the first step, while the next step would be stronger synthesis more widespread integrative intertwined approach of values for more than one laboratory indicator or imagery variables, together with clinical data as a part of useful applications or artificial intelligence progressive offer.

Key words: analysis, scale of laboratory values, reference values, applications, innovations, quality, healthcare.

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NAVIGATING THE GREEN LABYRINTH: ECOLOGICAL AND LEGAL ENFORCEMENT CHALLENGES OF CROSS-JURISDICTIONAL AI SYSTEMS UNDER EU DATA PROTECTION LAW

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ABSTRACT

Artificial intelligence (AI) systems increasingly function across various legal jurisdictions, presenting substantial legal and, increasingly, ecological difficulties, especially regarding the application of inconsistent data protection regulations. This article concentrates on the stringent legal framework of the European Union (EU), particularly the General Data Protection Regulation (GDPR) and the emerging AI Act, to analyze the specific enforcement challenges faced when AI systems manage data internationally. Prominent obstacles include determining jurisdiction over AI providers outside the EU, the intricacies of international data transfers following the Schrems II decision, challenges in scrutinizing non-transparent AI algorithms, assigning responsibility for harms caused by AI, and guaranteeing effective remedies for individuals whose data is used. Furthermore, the article introduces an ecological dimension, examining the significant environmental footprint of AI, including its massive energy and water consumption, carbon emissions, and the generation of e-waste. The article posits that, notwithstanding the EU's extensive regulatory initiatives, practical enforcement against AI operations spanning multiple countries remains a significant challenge. This is compounded by the urgent need to integrate environmental sustainability into the data protection paradigm. The results hold considerable implications for policymakers aiming to find a balance between fostering innovation, protecting the fundamental right to data privacy, and ensuring environmental responsibility amidst the rise of globalized AI. This emphasizes the necessity for flexible, internationally coordinated, and ecologically-conscious enforcement approaches.

Keywords: Cross-Jurisdictional Law, Data Protection, EU Law, Artificial Intelligence, International Cooperation, Sustainable AI, Environmental Impact, Green AI.

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OPTIMISATION AND ZOOTECHNICAL PERFORMANCE OF RED TILAPIA (*O. NILOTICUS* × *O. MOSSAMBICUS*) FARMING: CHALLENGES AND RESILIENCE IN SAHARAN AQUACULTURE IN EL OUED, ALGERIA

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ABSTRACT

The study was conducted at the experimental aquaculture station of the Higher School of Saharan Agriculture El Oued. The results showed the success of red tilapia farming despite temperature fluctuations (from 23 to 31 °C, with relative stability between 28 and 30 °C. In 50 days, the fry showed significant growth. Their average weight doubled from 5.43± 2.90 g to 10.11±4.33 g, and their total length increased from 6.77±1.17 cm to 8.70±1.12 cm. A daily growth rate of 0.09 ± 0.01 g/day, a feed conversion ratio of 2.75± 0.05 and a high survival rate of 90.24 ± 0.17% were recorded, demonstrating this species' ability to adapt to the harsh conditions of the Saharan environment. In light of these results, fish farming in Algeria appears to be a promising and profitable sector, likely to contribute to job creation and food security, provided that the necessary infrastructure is finalised and coordination between the various sectors concerned is strengthened. This study thus provides a solid scientific basis for the controlled development of tilapia farming in the Saharan regions.

Keywords: Fish farming, Production, growth, optimisation, protocol.

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CHRONIC NON-ONCOLOGICAL PAIN AND ITS MULTIFACTORIAL ETIOLOGY: A GENERAL FRAMEWORK FROM A NARRATIVE REVIEW

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ABSTRACT

Non-oncological chronic pain presents substantial challenges for primary healthcare systems that significantly impact patients' quality of life, as it is a widespread health issue. Chronic pain is defined as pain persisting for at least three months that can involve sensory, emotional, and psychological dimensions with no clearly identifiable causes. Resulting in social isolation and limitations in daily functioning. Between January and March 2025, we conducted an online narrative literature review, searching databases such as PubMed, Google Scholar, Scopus, and Web of Science. The MeSH terms and keywords included in the search strategy were chronic pain, non-oncological pain, neuropathic pain, nociceptive pain, musculoskeletal diseases, fibromyalgia, osteoarthritis, pain management, and quality of life. PhD nursing students assisted in the screening of articles, and two researchers independently performed data extraction to ensure accuracy and reduce bias. Only full papers in English were included in the final discussion. The results emphasize the various causes of chronic pain unrelated to cancer, including neuropathic, nociceptive, musculoskeletal, inflammatory, psychological, and mechanical origins. Musculoskeletal causes of non-oncological chronic pain were the most prevalent, with osteoarthritis, degenerative joint disease, spondylosis, and fibromyalgia as the most prevalent conditions in this group. It was also evidenced that the effective management of non-oncological chronic pain requires a multidisciplinary approach due to the complexity and variability of its causes. Primary healthcare providers, including family doctors and nurses, play a key role in early identification, intervention, and management of non-oncological chronic pain. The biopsychosocial model focuses not only on alleviating pain intensity but also on enhancing the overall quality of life for patients. It is recommended for effective management despite the variety of causes of non-oncological chronic pain.

Keywords: Non-oncological chronic pain, etiology, musculoskeletal, multidisciplinary management, biopsychosocial model, narrative review, multifactorial, primary health care.

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EVALUATION OF THE GROWTH AND EXPLOITATION PARAMETERS OF THE COMMON CARP *CYPRINUS CARPIO COMMUNIS* (L., 1758) INHABITING THE HAMMAM BOUGHRARA DAM WILAYA OF TLEMCEN-ALGERIA

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ABSTRACT

This study evaluates the growth and exploitation parameters of the common carp (*Cyprinus carpio communis*) population in Hammam Boughrara Dam, based on 1,010 specimens (441 males, 556 females, 13 undetermined) collected between September 2022 and September 2024 through experimental trammel net fishing. Males ranged from 20.5 to 65 cm (mean 43.94 cm) and females from 27 to 63 cm (mean 44.66 cm), with a statistically significant difference in mean size. Growth parameters, estimated using ELEFAN I, indicated an asymptotic length (L∞) of 74 cm and a growth coefficient (K) of 0.40/year for males, and L∞ of 70.25 cm and K of 0.39/year for females, consistent with literature values. Natural mortality rates were 0.404/year for males and 0.401/year for females, while total mortality reached 2.60/year and 1.67/year, respectively. The exploitation index was high—84% for males and 76% for females—exceeding the 50% biological equilibrium threshold, indicating overexploitation, as confirmed by the Thompson and Bell model. Estimated biomasses were 510 kg (males) and 860 kg (females), revealing a depleted stock. Reducing fishing pressure and implementing restocking programs with diverse cyprinid species are strongly recommended to restore biomass, improve yields, and ensure sustainable management of this inland fishery.

Keywords: Hammam Boughrara, carp, exploitation index, growth, mortality.

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CONTINUOUS MONITORING OF ENDANGERED ENTOMOFAUNA IN THE KASTRATI AREA AS A KEY FACTOR IN BIODIVERSITY CONSERVATION

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ABSTRACT

Kastrati area in northern Albania, having a variety of relief forms, creates opportunities for a very rich entomofauna that plays a crucial ecological role. This study, based on expeditions conducted in the period May-September 2024, identifies 21 endangered species, representatives of R.Coleoptera (7 species) and R.Lepidoptera (14 species); which belong to different categories of endangerment, according to IUCN definitions. Air and soil pollution, deforestation and a series of other factors have negatively affected the representatives of R.Coleoptera,which have a key role in the decomposition of nutrients. Thus, habitat fragmentation, pre-oviposition collections and other factors have negatively affected the species of R. Lepidoptera, which are essential for ecosystem stability and plant pollination. This study seeks to identify the state of the entomofauna of this area, analyzing the causes of the threat and proposing protective measures. Special care should be taken especially for species on the verge of extinction. And specifically for species threatened with extinction of EN status (Gymnopleurus mopsus and Cerambyx cerdo representing the VR Coleoptera as well as Maculinea arion, representing the Lepidoptera Order. Even more special care should be taken for the 2 representative species of R. Lepidoptera that result in Critically Endangered for Extinction such as (Parnassius apollo and Polymates eroides). The study underlines the importance of protecting the status of these insects, as an essential factor for preserving the biodiversity of the area, recommending responsible institutions to implement effective practices for conservation and continuous monitoring, especially for species that are heading towards extinction.

Keywords: Kastrati area, endangered species, habitat fragmentation, special care, preserving the biodiversity, extinction.

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ENVIRONMENT AND ENERGY RESOURCES IN ALBANIAN: PROMOTING ECO-MARKETING STRATEGIES AND CONSTITUTIONAL PROFILES

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ABSTRACT

Even though the Constitution of the Republic of Albania is new, having been adopted in 1998, it does not directly protect either the fundamental right to live in a healthy environment, understood as a substantive right, or environmental protection as an objective goal and constitutional duty of the State and public institutions. It should be noted that environmental protection, along with energy resource management, is included among the State's social objectives, affirming the State's commitment to ensuring the rational use of natural resources based on sustainable development. In assessing the lack of express recognition of the right to live in a healthy environment, the constitutional obligation to protect the environment and manage energy resources, it will be necessary to consider not only the legal aspects but also the historical context in which the Constitution was drafted. Indeed, it is well known that the Constitution of the Republic of Albania is the result of a complex political and institutional process that reflects the profound influence of the post-communist transition. This study aims to provide an introspective analysis of how the environment and natural resources management are structured according to the Albanian Constitution. The aim is to identify the need for an appropriate constitutional reform, ensuring that the right to live in a healthy environment, environmental protection, and energy resource management are not envisaged in a vague and ambiguous manner, as they may be legally 'elusive'. Eco marketing strategies aim to integrate the principles of sustainability and environmental responsibility into corporate practices, promoting environmentally friendly products and services. The goal is to reduce environmental impact, create long-term value, and strengthen consumer trust through transparent communication. The analysis will be conducted with an interdisciplinary legal, economic, and historical approach, with careful consideration of international, supranational, and constitutional sources. The aim is to identify the environmental gaps in the Albanian Constitution and how these gaps can be filled.

Keywords: environmental protection, right to live in a healthy environment, energy resources, climate change, eco-marketing, sustainability.

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COMPARATIVE STUDY BETWEEN *EUPHORBIA* HONEY-BASED GEL AND 1% SILVER SULFADIAZINE IN WOUND BED PREPARATION AND FOLLOW-UP OF FREE MESHED FULL-THICKNESS SKIN AUTOGRAFTS IN DOGS

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ABSTRACT

Honey has been used in the past for the treatment of wounds and skin ulcers. Currently, we are rediscovering its healing properties. Its proper application in infected wounds, burns, and skin auto-grafts yields favorable results. Our study is based on a comparison of two topical treatments, one conventional and another alternative. The aim of this study was to evaluate the role of *Euphorbia* honey-based gel (EH-BG), applied both before grafting to prepare the recipient bed and after grafting to promote graft take, in meshed full-thickness skin grafts (MFTSGs) in dogs, and to compare its effectiveness with 1% silver sulfadiazine (SSD). Six adult dogs of a local Algerian breed were used, divided into two groups of three randomly selected dogs. Full-thickness skin wound (4 cm x 5 cm) was excised on the right lateral radial area. The wounds of the first group were treated with SSD, while those of the second group were treated whith EH-BG. Bandages were changed every day, during which a macroscopic assessment of the quality of the granulation tissue. Donor skin was taken from the left thoracic region of each dog and was fixed to the recipient bed following application of the assigned treatment. A qualitative and quantitative assessment of the graft viability was performed at each dressing change. The results showed that EH-BG produced dense, red granulation tissue that filled wounds effectively in 7 days, accompanied by earlier epithelialization. By day 4 post-grafting, all EH-BG grafts were tightly attached to the underlying tissue, indicating good adherence to the recipient bed. In contrast, one of the three grafts was immobile in the SSD group. EH-BG created ideal conditions for a steady increase in the number of skin grafts, with a higher graft success rate of 69.8% compared to 42.4% in the SSD group. Hair regrowth onset occurred notably earlier in the EH-BG group at day 30 compared with the SSD group at day 45. Thus, EH-BG improves wound bed preparation and enhances meshed, full-thickness skin graft healing compared with 1% silver sulfadiazine ointment in dogs.

Key words: EH-BG, 1% SSD, skin auto-graft, Recipient bed.

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AN OVERVIEW OF THE IMPACT OF APICULTURE ON HOUSEHOLD ECONOMY AND RURAL TOURISM DEVELOPMENT IN NORTHERN ALBANIA

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ABSTRACT

The northern region of Albania represents an area with high potential for beekeeping development, making a significant contribution to tourism growth and to the improvement of both household and regional economies. The climatic conditions, hydrography, flora, and biodiversity all play an important role in supporting the development of this activity. This study is based on field observations and surveys performed from April 2024 to September 2025 in the northern region of Albania. It provides an overview of the role of beekeeping in household economies and the impact of this activity on regional tourism. The results show that, in addition to male beekeepers, women are also supporting their spouses in the auxiliary beekeeping activities. It is evident that there is limited interest and involvement among age groups under 25, while the most active group in this activity is the 41–60 age range, which indicates a promising future for the region. Nearly half of the beekeepers have beekeeping as their main profession and as an important source of income for their families. Beekeeping shows potential for development and impact on household and regional economies, as well as on tourism, supported by the more than 10 years of experience held by most beekeepers. The activity is also supported by tourist interest, as visitors learn about beekeeping and help encourage its expansion and further development. Considering the role of beekeeping in improving household economies and promoting tourism in the area, it is suggested that regional authorities provide greater support for this activity through marketing strategies, the organization of promotional events for bee products, and management policies aimed at strengthening the synergy between beekeeping, rural economy, and tourism development in northern Albania.

Keywords: Northern Albania, beekeeping, gender participation, demographic structure, rural tourism, sustainable regional tourism.

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Abstract
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STUDY ON THE MAIN ABORTIVE DISEASES OF SHEEP IN THE ELBAYADH REGION, ALGERIA

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ABSTRACT

This study was conducted to illustrate the seroprevalence of *Brucella melitensis, Coxiella burnetii, Chlamydophila abortus, Toxoplasma gondii and Neospora caninum in* local sheep flocks living in the Elbayadh region of Algeria, as well as to study their effect on animal health and performance. A total of 184 serum samples were collected from ewes suffering from abortions and used in this study. Our results revealed that 46 (25%) sera contained antibodies against *Brucella melitensis* and that 25 (13%), 23 (12.5%), 11 (6%) and 3 (1.6%) were positive for *Coxiella burnetii, Chlamydia abortus, Toxoplasma gondii* and *Neospora caninum,* respectively. A higher seroprevalence of *Brucella melitensis* was recorded in younger ewes and those aged five years and older belonging to large flocks. In conclusion, abortions are a significant health problem in sheep farming. Identifying the abortifacient agents could help in making the best decisions to minimise economic losses.

Keywords: brucellosis, toxoplasmosis, chlamydophilosis, Q fever, neosporosis.

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OVERVIEW OF FLUVIAL PROCESSES IN MATI RIVER, ALBANIA

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ABSTRACT

The article prescribes some of the main fluvial sediment-forming processes and hydrology of the Mati River, Albania, in relation to today's newest formations and the dynamics of their current and future developments. fluvial processes in the Mati River of Albania are diverse, complex and relate to the erosion-deposition ratio, flow rate, sediment transport, river bars, and terraces. this entire problem is treated in the theoretical and practical aspect with corresponding illustrations for Mati River watershed. the negative effects of marine erosion, floods, landslides of various degrees spread especially in recent years in Albania, are compared to the natural balance and the disturbances created by human intervention in the state of the new terrain, in the state of sub-soils water basins and especially in the state of the new soil stability. the explanation of these phenomena gives an important contribution to the community regarding the degree of danger and in the precautions that should be taken by the central and local government institutions preventing risks.

Keywords: fluvial sediment-forming, rigid flow, suspended alluviations, erosive activity.

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LANDSCAPE AT RISK: ASSESSMENT OF HABITATS AND ANTHROPOGENIC PRESSURES IN THE NARTA LAGOON PROTECTED AREA, ALBANIA

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ABSTRACT

The Narta Lagoon, part of the "Vjosë-Nartë-Pishë Poro" Protected Landscape, is characterized by a rich mosaic of aquatic and terrestrial habitats, where natural dynamics and anthropogenic impacts interact to create unique coastal landscapes. The study was carried out during the spring-summer period of 2023-2024 through botanical field expeditions, where diagnostic and dominant plants of habitat types were identified based on the Natura 2000 ecologiacal network, in accordance with European Directive 92/43/EEC "On the conservation of natural habitats and of wild fauna and flora". The results show a broad mosaic of ecosystems that include aquatic, lagoonal, halophytic, dune and forest habitats, forming a clear ecological transition from marine to terrestrial environments. Several main habitat types have been identified, such as: river estuaries (1130), coastal lagoons (1150), Mediterranean salt meadows and thermo-Atlantic halophilous scrubs (1410 and 1420), mediterranean salt steppes (*Limonietalia*) (1510), shifting dunes along shore lines (2120), forests with *Pinus halepensis* (9540) and alluvial forests with *Salix alba* and *Populus alba* (3280). The study also highlighted the presence of two plant species, *Anacamptis piramidalis* and *Ruscus aculeatus* are listed in the annexes of HD 92/43/EEC and ten others are listed in the national red list as threatened species. No globally threatened species were identified, although invasive species and human activities pose a potential threat to ecological balance. The Narta Lagoon represents a sustainable and complex system of Mediterranean ecosystems, with great scientific and conservation values. Sustainable management, continuous monitoring and control of anthropogenic impacts are essential for the preservation of this unique natural landscape.

Keywords: biodiversity, Narta Lagoon, Natura 2000 habitats, coastal ecosystems, flora.

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THE EFFECT OF DIFFERENT LEADERSHIP STYLES ON ORGANIZATIONAL DEVELOPMENT PROCESSES IN TOURISM BUSINESSES: A SYSTEMATIC REVIEW

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ABSTRACT

This systematic review aims to examine the effects of different leadership styles on organizational development processes in tourism enterprises. The study analyzed 20 academic studies published between 2010 and 2025 and conducted in the tourism sector in accordance with the PRISMA 2020 protocol. The review evaluated the effects of transformational, servant, ethical, empowering, authentic, inclusive, and transactional leadership styles on indicators such as organizational innovation, employee engagement, learning, ethical climate, sustainability, and service quality. The findings indicate that the most frequently studied leadership styles in the tourism sector are servant, empowering, and ethical leadership. Servant leadership strengthens employee engagement, trust, and ethical behavior; empowering leadership fosters innovation, knowledge sharing and a learning organizational culture. Ethical leadership, in turn, increases service quality and customer satisfaction by creating trust and a perception of justice. Transformational leadership is prominent in vision sharing and motivation, while authentic and inclusive leadership is prominent in the areas of belonging, citizenship behavior and sustainable development. The research reveals that leadership is not only a managerial tool in tourism enterprises but also a key determinant of organizational transformation and sustainability. By presenting a thematic synthesis using qualitative content analysis, the study makes three key contributions to the literature: (1) a theoretical framework integrating different leadership styles within the context of organizational development; (2) a methodological contribution using a PRISMA-based systematic review method; and (3) practical recommendations for tourism managers based on ethical, empowering and participatory leadership. The findings demonstrate the strategic importance of people-centered leadership approaches for innovation, employee well-being and sustainable competitiveness in the tourism sector.

Keywords: Tourism Enterprises, Leadership Styles, Organizational Development, Innovation, Sustainability, Systematic Review. Jel Codes: L80, L83, L89.

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ASSESSMENT OF TOTAL ORGANIC CARBON (TOC) IN DRINKING WATER AS A PRECURSOR INDICATOR OF CHLORINATION BY-PRODUCTS, SUCH AS TRIHALOMETHANES (THMs), IN THE CITY OF TIRANA

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ABSTRACT

High-quality drinking water is essential for public health. The city of Tirana is supplied with drinking water from two main sources: the Bovilla Reservoir and the Selita Spring, as well as several other secondary sources. The Bovilla Reservoir has a fully operational treatment plant and produces approximately 2400 L/s of drinking water, covering about 60% of the city's needs. Meanwhile, the water from the Selita Spring is treated only with chlorine. This study aims to assess the Total Organic Carbon (TOC) content in these water sources, considering TOC as a precursor for the formation of trihalomethanes (THMs), and to evaluate the efficiency of the Bovilla treatment plant in reducing TOC levels. The removal of natural organic matter prior to disinfection is essential to minimize the formation of undesirable chlorinated organic compounds. The study involved the analysis of samples collected from both the supply sources and the distribution network, with a total of 189 samples gathered over a 9-month period, at a monthly sampling frequency. The parameters analyzed include: TOC, pH, free chlorine, conductivity, and turbidity, according to the relevant ISO standards. TOC was measured using the SHIMADZU instrument. Results: The highest TOC value was recorded in the Bovilla reservoir water in September (3.6 mg/L). Elevated TOC levels were also recorded during winter: 2.38 mg/L at the treatment plant outlet and 2.53 mg/L in the distribution network. The average TOC removal efficiency of the Bovilla treatment plant was estimated at 19.10%, reducing the average TOC content to 2.07 mg/L in the water entering the distribution network. This value approaches the EPA-recommended limit (TOC <2 mg/L), where at this level of organic content, the risk of THM formation does not exceed the permitted limit according to the EU directive (100 µg/L). The water from the Selita Spring showed lower TOC values (<2 mg/L) both at the source and in the network and is considered safer in terms of THM formation potential.

Keywords: Drinking water, TOC (Total Organic Carbon), THM (Trihalomethanes), water treatment, disinfection, water quality, distribution network.

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OXIDATIVE STRESS GENERATED BY AIR POLLUTION, ENVIRONMENTAL AND HEALTH ISSUES: A REVIEW OF SCIENTIFIC DATA

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ABSTRACT

Air pollution constitutes a significant environmental hazard with serious consequences for human health. Exposure to airborne particulate matter, gaseous pollutants, and toxic metals has been repeatedly associated with the production of reactive oxygen species (ROS) and the onset of oxidative stress, a state defined by an imbalance between pro-oxidants and antioxidant defenses. Oxidative stress has a role in the development of various diseases, such as respiratory ailments, cardiovascular issues, neurological disorders, and metabolic irregularities. Pollutants can mechanistically produce reactive oxygen species (ROS) either directly via chemical reactions or indirectly by stimulating inflammatory pathways. This study thoroughly analyzes the existing knowledge of oxidative stress generated by air pollution, emphasizing the molecular and cellular mechanisms, the biomarkers utilized to evaluate oxidative damage, and the resulting health consequences. Moreover, it underscores the necessity for integrated approaches to diminish exposure and avert sickness. This article synthesizes current evidence to establish a basis for future research and public health policies targeting the dual issues of environmental pollution and diseases associated to oxidative stress.

Keywords: air pollution, oxidative stress, reactive oxygen species (ROS), antioxidant defense.

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THE MEDIATION OF SUSTAINABILITY: MEDIA LANDSCAPES AND ENVIRONMENTAL DISCOURSE IN EQUATORIAL AFRICA

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ABSTRACT

The media play a critical role in shaping public understanding of sustainability challenges, such as climate change adaptation, natural resource management, and biodiversity conservation. However, in regions undergoing rapid political transformation, such as Equatorial Africa, the structure and control of media systems themselves are in flux, raising questions about how environmental issues are communicated to the public. While the decolonization of media from former metropolitan powers is widely noted, the implications of this shift for sustainability governance remain underexplored. This article investigates the contemporary media landscapes of Equatorial Africa to analyze how evolving structures of state control and national sovereignty influence the capacity for environmental communication. Employing a systematic analysis of recent scholarly publications (2022-2025) from the Russian academic segment, this study examines the political economy of media in key countries, including the Democratic Republic of Congo, Senegal, Burkina Faso, and Niger. The findings indicate that media systems in the region remain at a nascent stage of development, characterized by strong state influence and a continued reliance on radio as the primary information channel. A central trend is the deliberate restriction of foreign media outlets as part of a broader project of asserting national sovereignty. We argue that this pursuit of "media sovereignty" often manifests as increased state control, which subsequently restricts the plurality of voices and the independence of reporting. This has direct consequences for sustainability, as it potentially limits critical discourse on environmental degradation, corporate accountability, and climate policy, framing these issues primarily through a lens of nationalistic and political expediency rather than ecological necessity. The study concludes that the ongoing "ideologeme" in Equatorial African media—the process of elevating national languages and narratives—is intrinsically linked to environmental communication. The move away from colonial linguistic frameworks presents an opportunity for locally relevant sustainability narratives but is simultaneously constrained by new forms of state-controlled media environments. Understanding this dynamic is essential for international partners and NGOs seeking to effectively collaborate on sustainability initiatives in the region.

Keywords: cultural sustainability, urban regeneration, place-making, transit-oriented development (TOD).

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HUMAN ECOLOGY AS A DRIVER OF GREEN EMPLOYABILITY: AN EMPIRICAL ANALYSIS OF TOURISM ECOSYSTEMS IN NORTHERN ALBANIA

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ABSTRACT

Tourism ecosystems in Northern Albania represent interconnected socio-ecological systems where human activity, environmental sustainability, and economic well-being converge. These ecosystems offer significant potential for regional development; however, employment instability, skills gaps, and limited ecological awareness continue to undermine their long-term resilience. This study examines the role of human ecology in shaping green employability and workforce sustainability within tourism ecosystems. It investigates how educational pathways, technological readiness, and environmental motivation contribute to sustainable career outcomes. A quantitative research design was implemented using data from 230 respondents drawn from vocational and university institutions involved in tourism-related studies. Statistical analyses—including independent samples t-test, Pearson correlation, and multiple linear regression—were conducted to assess the influence of education type, employment readiness, and technological adaptability on perceived job stability and ecological awareness. Findings indicate that vocational education significantly enhances green employability, adaptability to eco-friendly practices, and job stability perceptions compared to university pathways. Technological readiness and environmental motivation were identified as strong predictors of sustainable employment outcomes, jointly explaining over 70% of the variance in employment stability. This study highlights human ecology as a critical framework for understanding labor-market transformation in sustainable tourism. It demonstrates that integrating green and digital skills within vocational curricula can strengthen human–environment interaction, enhance ecological responsibility, and promote workforce resilience. The results provide strategic policy insights aligned with Sustainable Development Goals emphasizing the need for education systems to drive ecological transition in emerging tourism economies.

Keywords: Human ecology, green employability, tourism ecosystems, vocational education, technological readiness, sustainable development.

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HEAVY METALS POLLUTION DEGREE IN THE BATLLAVA ACCUMULATION AS A DRINKING WATER RESOURCE

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ABSTRACT

The Batllava reservoir, a major drinking water source in Kosovo, is contaminated by various anthropogenic activities, including urban runoff, wastewater discharge, and agricultural infiltration. This study quantified the concentrations of essential and heavy metals (Pb, Cd, Cu, Zn, etc.) in the reservoir water and evaluated their potential health risks. Water samples (n = X) were collected from three representative sites during the summer and autumn seasons and analysed using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) following standardised protocols. Heavy metal concentrations were compared with World Health Organisation (WHO) drinking water guidelines and national water quality data. The results indicated that lead concentrations ranged from X to Y mg/L, occasionally exceeding recommended limits, while cadmium, copper, and zinc levels remained within safe thresholds. Correlation analysis revealed a positive relationship between metal concentrations and proximity to anthropogenic pollution sources. These findings highlight the influence of untreated discharges on heavy metal contamination and underscore the need for continuous monitoring and management strategies to ensure safe drinking water.

Keywords: Heavy metals, water quality, Batllava reservoir, ICP-MS, environmental risk assessment, drinking water.

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ENVIRONMENTAL MODELS APPLIED SIMULTANEOUSLY IN TWO FARMING STATION MUSSELS OF ALBANIA FOR THE ASSESSMENT OF WATER TROPHY

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ABSTRACT

Albania has two main mussel farming stations: the Butrint Lagoon and the coastal waters of Shëngjin. Mussel cultivation in Shëngjin is still in its early stages, with an annual production of approximately 500 tons. Although it currently has a lower production capacity, the area demonstrates high potential for the cultivation of other aquaculture species. In contrast, mussel farming in the Butrint Lagoon has a long-standing tradition. Local communities regard the lagoon as an ideal site for mussel production, due to its favourable water temperature and optimal salinity levels. This study was realized in the framework of on-going project *"Innovative evaluation of the role of biomarkers and bioindicators in the quality of seafood products"* which was financed and supported by "National Agency for Scientific Research and Innovation" (NASRI) and "Academy of Sciences" in Albania. Four expeditions were carried out during the period April – August 2024 in Butrinti lagoon and on the coast of Shëngjin (mussel farming station) to collect sample water samples for assessing the quality of the aquatic environment supporting marine organism growth. For the assessment of the quality of the waters of the coastal areas taken into the study, we will be based on WFD Water Framework Directive which is used by the National Environment Agency *(NEA)* as well as on the European Commission Directive 2006/44/EC on the quality of waters supporting fish farming. To determine the trophic state, two indices widely used in marine environments, including lagoon and sea coast system are used: Gupta and Lamparelli Index. According to the classification derived from the averaged Lamparelli Index, which incorporates total phosphorus and chlorophyll-a concentrations, the Butrint Lagoon displays a mixed trophic state, oscillating between mesotrophic and eutrophic conditions. In contrast, the temporal trend observed at the Shëngjin cultivation station indicates a stable oligotrophic state, which aligns with consistently high-water quality.

Keywords: Mussel farming station, Butrinti lagoon, Shengjini sea coast, Lamparelli trophic state index, Gupta trophic state index.

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LEVERAGING THE WILDLIFE INSIGHTS PLATFORM TO BUILD AI LITERACY AND ANALYTICAL SKILLS IN FUTURE ENVIRONMENTAL SPECIALISTS

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ABSTRACT

The contemporary biodiversity crisis requires qualitatively new approaches to the training of environmental specialists who would be proficient with tools for the digital analysis of data from protected natural areas. The purpose of the study was to develop and evaluate the effectiveness of an educational approach based on the use of artificial intelligence tools to develop the competencies of environmental science students in the field of analyzing data from specially protected natural areas (SPNA). The pedagogical experiment involved 48 3rd-year students randomly assigned to the experimental (n = 24) and control (n = 24) groups. The experimental group underwent three-stage training to work with the Wildlife Insights platform to automatically identify animals in images from camera traps. The effectiveness of the approach was assessed by comparing the level of competency development, the quality of data analysis, and environmental thinking. The results showed a statistically significant superiority of the experimental group: the median total test score was 18.0 against 11.0 in the control group ($U = 32.0$, $p < 0.001$), the accuracy of species identification was 95.0% vs 78.0% ($U = 89.5$, $p < 0.001$), and task completion time was 2.9 times shorter. Students in the experimental group were more likely to identify complicated ecological patterns (87.5% vs 29.2%) and showed greater readiness to use digital tools in professional practice. The developed approach can be scaled for various environmental education programs, contributing to the goals of the Kunming-Montreal Framework for the effective management of protected natural areas.

Keywords: biodiversity, machine learning, environmental education, environmental risks, natural ecosystem.

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BLOOMING DYNAMICS AND CHEMICO-TECHNOLOGICAL CHARACTERISTICS OF SELECTED APPLE CULTIVARS UNDER AGRO-ECOLOGICAL CONDITIONS OF PEJA, KOSOVO

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ABSTRACT

Apples (*Malus domestica* Borkh.) are among the most consumed and economically important fruits worldwide due to their nutritional, technological, and market value. This study evaluated the flowering dynamics and chemico-technological characteristics of six apple cultivars—Montear Gala, Royal Gala, Red Falstaff, Saturn, Jonagored, and Golden Delicious clone B—grown under the agro-ecological conditions of Peja, Kosovo, during the 2022–2023 season. A randomised complete block design (RCBD) with four replications and five trees per cultivar per replication was used. Flowering onset was defined as 15% of buds open, and flowering end as >70% bloom. Fruit quality parameters—dry matter content (DMC), moisture content (MC), total soluble solids (TSSC), total acidity (TA), and ascorbic acid content (AAC)—were analysed using AOAC methods. Data were subjected to ANOVA and LSD tests at $p \leq 0.05$, and Pearson correlation coefficients were used to assess relationships among traits. Significant differences were observed among cultivars in flowering and fruit quality. Montear Gala flowered earliest and longest (14 days), while Jonagored flowered latest and shortest (10 days). Golden Delicious clone B had the highest DMC (16.7%), Saturn the highest TSSC (12.7 °Brix) and lowest TA (0.250 mg/100 g), and Montear Gala the highest AAC (230 mg/kg). These results guide cultivar selection and orchard management for fresh consumption or processing under Peja's conditions.

Keywords: *Malus domestica*, apple cultivars, flowering duration, fruit quality, soluble solids, ascorbic acid.

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THE IMPACT OF INDUSTRIAL PROCESSES IN THE KUFA CEMENT PLANT ON INDOOR AIR QUALITY IN THE SURROUNDING HOMES

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ABSTRACT

This study examined the impact of industrial activities from the Kufa Cement Plant on indoor air quality from 30 homes with varied proximal distances to the plant. It focused on carbon dioxide and total volatile organic compounds quantification as indoor pollutants heavily influenced by industrial activities. The Air things 2930 Wave Plus monitor checks the air quality on the inside. It measures radon, CO 2, TVOCs, temperature, humidity, and air pressure in real time. This device was installed in the main living rooms for thirty days, collecting data every other 5 minutes. After collecting an average of the level of pollution from the homes, we looked into each to show how polluted the air was and how much of it is correlated to the distance to the Cement Plant. It was revealed that CO2 levels ranged between 650-970 ppm with an average of 865 ppm that is more than the 800 ppm recommended indoor limit, more so for the homes closer to the plant. The average TVOC is 225ppb with some homes near the planted reporting more than the set limit 250 ppb. The correlation between the high values of CO2 and other TVOCs in the same homes reveals the dirt of the air through man-made activities such as clinker manufacturing, grinding, and truck movement. This study established that industrial activities affect the level of indoor air pollution in the homes nearest to the Kufa Cement Plant. These study results indicated that this region requires cleaner air through better ventilation as industries remain to control their emissions for the health of the residents living nearby.

Keywords: Indoor Air Quality, Cement Industry, Kufa Cement Plant, Carbon Dioxide (CO_2), Total Volatile Organic Compounds (TVOCs).

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OPPORTUNITIES TO IMPROVE ENVIRONMENTAL SUSTAINABILITY AND INTEGRATE ENVIRONMENTAL STANDARDS TO REDUCE THE ENVIRONMENTAL IMPACT OF CRYPTOCURRENCY INDUSTRY DEVELOPMENT

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ABSTRACT

The cryptocurrency industry creates a significant environmental burden, consuming 0.61-0.78% of global electricity and generating 0.28% of global carbon dioxide emissions. The purpose of the study was to identify opportunities to increase environmental sustainability and integrate environmental standards to reduce the burden on the environment from the development of the crypto industry. The study used a qualitative methodological approach combining a systematic comparative analysis of regulatory documents of eight jurisdictions for the period of 2022-2025 and semi-structured expert interviews. The jurisdictions were classified according to the degree of regulation: strict (EU, Switzerland), moderate (USA, Great Britain, Japan), liberal (Singapore, UAE), and prohibitive (China). The results demonstrated substantial heterogeneity in regulatory approaches with different environmental impacts. Information and fiscal mechanisms have the greatest potential to achieve environmental sustainability while minimizing unintended consequences. Prohibitive approaches create mixed consequences for the environment, increasing global emissions by 15-20% due to the migration of mining to regions with more carbon-intensive energy. The study demonstrates the need for international coordination of regulatory efforts and a shift from prohibitive to transformative strategies. The proposed three-level strategy for the integration of environmental standards (mandatory reporting, economic incentives through differentiated taxation, and progressive mandatory standards) shows the potential to reduce the environmental burden from the development of the crypto industry.

Keywords: cryptomining, environmental sustainability, green economy, carbon emissions, international coordination.

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COMPARATIVE STUDY OF FOUR PROTOCOLS FOR SYNCHRONISING OESTRUS IN REMBI EWES IN THE EL BAYADH REGION, WESTERN ALGERIA

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ABSTRACT

This study evaluated the reproductive performance of 225 Rembi ewes (2–5 years old) subjected to four heat synchronization protocols on farms in the El-Bayadh region. The ewes were divided into four groups: I (FGA sponges + 480 IU PMSG), II (FGA sponges + 700 IU PMSG), III (FGA sponges + 50 µg GnRH), and IV (FGA sponges + ram effect). Rams were introduced at a 1:5 ratio for oestrus detection and mating. Oestrus response rates were 83.9%, 94%, 18.42%, and 72% for groups I, II, III, and IV, respectively. Mean oestrus onset times after sponge removal were 35 h, 22 h, 35 h, and 32 h. Statistical analysis showed a highly significant effect of treatment on oestrus response ($p = 0.000$) and significant effects on fertility, prolificacy, and lambing rate ($p < 0.05$). Group II exhibited the best reproductive performance, with fertility rate 62%, fecundity 118%, and prolificacy 190%. The overall lambing rate was 67.5%, highest in group IV (83.33%), followed by groups II (65.95%), I (63.01%), and III (42.85%). Results demonstrate that a higher PMSG dose (700 IU) improves fertility and prolificacy, while combining progestin treatment with the ram effect enhances lambing rate. Conversely, replacing PMSG with GnRH at sponge removal significantly reduces reproductive efficiency.

Keywords: GnRH, heat synchronization, PMSG, ram effect, reproductive performance.

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FROM COMPETENCE TO COMPLIANCE: OPTIMIZING ENVIRONMENTAL MANAGEMENT FOR SUSTAINABLE INDUSTRY

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ABSTRACT

Compliance with environmental protection requirements is an important condition for ensuring the stability of an industrial enterprise. One of the mandatory requirements for organizations whose operations may affect the environment is the regular training of employees responsible for decision-making in environmental matters aimed at developing their environmental competences. The objective of the study is to identify directions for forming environmental competences among employees of industrial enterprises and improving the efficiency of the environmental management system to achieve the principles of sustainable development and preserve biodiversity. The article presents methods for developing environmental competences at enterprises that have implemented an environmental management system based on ISO 14001. The article analyzes mechanisms for forming environmental competences based on a survey of managers of small, medium, and large industrial enterprises. The results allow developing a program for working with industrial enterprise employees to increase their level of environmental competences and ensure compliance with environmental standards, fostering responsibility for environmental protection.

Keywords: environmental standards, biodiversity conservation, environmental knowledge, ISO 14001, Total Quality Environmental Management.

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SEROPREVALENCE AND RISK FACTORS OF EQUINE ARTERITIS VIRUS IN WESTERN ALGERIAN HORSES: A CROSS-SECTIONAL STUDY

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ABSTRACT

The equine arteritis virus (EAV) is a pathogen that has a global distribution and infects equids, causing respiratory disease, reproductive losses and persistent infection in stallions. Despite its significance, epidemiological data from North Africa remain scarce. In Algeria, only one previous study has reported EAV seroprevalence, but it was purely descriptive and did not assess risk factors. The objective of the current study was to estimate the seroprevalence of EAV in Western Algeria and to identify potential demographic and management-associated risk factors. A cross-sectional study was conducted on five equine farms located in the wilayas of Tiaret and Mostaganem between December 2017 and January 2018. Serum samples (n = 176) were collected for the purpose of EAV antibody testing using a commercial ELISA kit. True prevalence was calculated by employing the Rogan–Gladen estimator. The associations between seropositivity and age, sex, breed, and vaccination status were assessed using Fisher's exact test, univariable logistic regression, and multivariable penalised logistic regression, with a view to addressing sparse data bias. The model diagnostics encompassed the Akaike Information Criterion (AIC), McFadden's Pseudo-R^2, and Variance Inflation Factors (VIFs). The apparent seroprevalence was 2.84% (5/176; 95% CI: 1.22–6.48%), corresponding to a true prevalence of 2.23%. Seropositive horses were predominantly male and of an advanced age. Univariable analysis suggested higher odds of seropositivity in stallions (odds ratio [OR] = 2.98) and Thoroughbreds (OR = 6.74), though associations were not statistically significant. Penalised logistic regression produced estimates that were more stable, but the confidence intervals were wide due to the low number of positive cases. The present study constitutes the inaugural risk factor–based investigation of EAV in Algeria. Despite the low prevalence rate, the detection of seropositive stallions emphasises the existence of potential reproductive risks.

Keywords: Algeria, Equine Arteritis Virus, Epidemiology, Logistic Regression, Risk Factors, Seroprevalence

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REDUCING ENVIRONMENTAL DAMAGE: GREEN INITIATIVES AND THE DEVELOPMENT OF INFORMATIONAL AND EDUCATIONAL PROGRAMS AMONG CRYPTOCURRENCY INDUSTRY PARTICIPANTS FOR ENVIRONMENTAL PROTECTION

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ABSTRACT

Modern society faces serious environmental challenges, including new ones related to the high energy consumption of blockchain technologies. In recent years, the cryptocurrency industry has begun to recognize the problem of environmental damage and take steps to reduce it. This study systematizes the green initiatives of the crypto industry (technical, legal, economic, and informational-educational) aimed at environmental protection and assesses their effectiveness. The methodology includes content analysis of public sources for the period 2021-2025 and a quantitative assessment of environmental indicators based on data from the Cambridge Centre for Alternative Finance and the Crypto Carbon Ratings Institute. The results of the study show significant progress in technical and economic green initiatives that help reduce environmental harm. However, informational and educational programs as tools for influencing industry participants are almost completely absent. The authors have revealed a lack of systematic educational programs on environmental responsibility in the crypto industry. Therefore, it is necessary to develop the informational and educational direction as a key condition for the sustainable development of the industry and for the effective implementation of green initiatives.

Keywords: decarbonization, ecology, mining, renewable energy, carbon footprint, achieving sustainable development.

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BIOCHEMISTRY OF FATIGUE IN ATHLETES TRAINING NEAR CONTAMINATED WATER SOURCES: A REVIEW

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ABSTRACT

Exposure to polluted water sources, including heavy metals (arsenic, lead, cadmium), organic contaminants (pesticides, disinfection by-products), and microplastics, constitutes an escalating public health issue. Athletes practicing near these sources are especially susceptible, since physical exertion increases oxygen consumption, circulation, and, therefore, the absorption of aquatic pollutants. These pollutants may provoke oxidative stress by producing reactive oxygen species (ROS), which can damage lipids, proteins, and DNA, eventually impairing muscle function and overall athletic performance. Biomarkers including malondialdehyde (MDA), 8-hydroxy-2′-deoxyguanosine (8-OHdG), and enzymatic antioxidants such as superoxide dismutase (SOD), glutathione peroxidase (GPx), and reduced glutathione (GSH) serve as quantifiable indications of oxidative injury and the organism's antioxidant defense capability. The current research mostly examines swimmers exposed to cleaned pool water, while information about athletes exercising in polluted wild water bodies is scarce. This study consolidates existing research on oxidative stress indicators in athletes, investigates the biochemical processes of tiredness induced by environmental stresses, and assesses possible consequences for recovery, performance, and long-term health. Moreover, it identifies research deficiencies and suggests methodologies for monitoring, prevention, and antioxidant therapies to alleviate oxidative damage, underscoring the need for interdisciplinary investigations that include sports science, biochemistry, and environmental toxicology.

Keywords: polluted water, biochemical exhaustion, reactive oxygen species, indicators, athletes.

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CALVING-RELATED DISEASES IN DAIRY CATTLE FARMS IN WESTERN ALGERIA

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ABSTRACT

The dairy industry prioritizes good reproductive performance in cattle. Post-calving health issues in dairy cows cause significant economic losses, prompting increased scientific interest worldwide. This study examined calving-related diseases in 90 dairy cows from six farms of varying sizes in southwest Tiaret. The research aimed to determine the prevalence of calving-related diseases in dairy cattle and evaluate the methods used by veterinary practitioners to treat retained fetal membranes. It revealed a prevalence of 12.2% for retained fetal membranes, with both abortion and dystocia occurring in 11.1% of cases. Milk fever affected 4.4% of cows, and metritis was observed in only 1.1% of cases. The analysis showed a statistically significant difference ($\chi^2 = 15.67$, $p = 0.003$), indicating that certain pathologies are more prevalent in this population. The study highlighted that manual removal of retained membranes, combined with local antibiotic treatment, is a widely practiced and effective method for managing retained fetal membranes in dairy cattle ($\chi^2(6) = 18.45$, $p = 0.005$, Cramer's $V = 0.277$); a binomial test further supports the significance of this preference ($p = 0.00086$).

Keywords: Dairy cow, dystocia, metritis, milk fever, retained fetal membranes.

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ASSESSMENT OF COMPLIANCE WITH SUSTAINABILITY STANDARDS IN FURNITURE PRODUCTION: CASE STUDY IN ALBANIA

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ABSTRACT

In general, sitting for a long time on a piece of furniture turns into discomfort for most people. The concern increases even more when there is no harmony between the furniture, in this particular case: the height of the chair and the table. Different researchers have suggested different dimensions regarding the height of the chair and the table and their adaptation height to each other. The study presents the data of 60 measurements in bar-café environments where chairs and tables were taken into consideration. To analyze the dimensions of chairs and tables used in coffee bars a study was carried out in 30 manufacturing companies regarding their knowledge of their standard dimensions. According to the questionnaire data, a significant number of enterprises (43.3%) produce products according to the experience they have and do not consider/treat the standards. The data show that there is no harmony between the height of the chairs and tables placed in the premises where the study was done. The study highlights a mismatch in ergonomic terms of seat height and desk height. Also, they do not correspond with the standard examined in the ISO 7250-3:2015 study. It is recommended that during the design of the environments for the caffee bar, the dimensions presented in the paper should be taken into consideration, so that the furniture can be adapted to the anthropometric requirements of the customers.

Keywords: chair, table, furniture design, ergonomics, ISO 7250-3:2015.

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WATER AND NUTRIENT IMPACT ON LEMON BALM GROWTH IN ALBANIA AND OIL YIELD

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ABSTRACT

This study assesses the impact of different irrigation and fertilization regimes on the dry biomass yield and essential oil (EO) production of Melissa officinalis L. (lemon balm), a perennial medicinal and aromatic plant widely valued for its antimicrobial, antiviral, and antioxidant properties. The plants used in the experiment were cultivated in Sutaj, Prrenjas, Albania, located at an altitude of 950 meters above sea level. This mountainous region has a continental climate which, with temperature changes in winter and summer, significantly affects the quality of the biomass and essential oil produced. Since the amount of water and fertilization are two of the main factors in the production and cultivation of lemon balm, nine different treatments were carried out in which the importance of each of them in its production yield will be studied. 9 different treatments were carried out where the combination of irrigation (100%, 50% and 0%) and fertilization (100%, 50% and 0%) was made. The soil analysis performed before cultivation showed that the soil is characterized by an alkaline environment with a pH of 8.63 and a low conductivity but with sufficient amounts of macronutrients and micronutrients. The results obtained from the experiment showed that the highest percentage was obtained under optimal conditions of irrigation and fertilization, about 40% for biomass yield and 0.12% for essential oil production. The lowest yield values were recorded in the absence of irrigation and fertilization. This draws a very important conclusion about the quality of irrigation and fertilization as the main factors in the growth and production of optimal biomass and the highest percentage of essential oil of lemon balm. The study provides an important contribution on the importance of biotic and abiotic factors in the potential of lemon balm in the medicinal and aromatic plants sector in Albania.

Keywords: Melissa officinalis, biomass yield, essential oil, soil characteristics.

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PREVALENCE AND ECONOMIC IMPACT OF HEPATIC FASCIOLOSIS IN SLAUGHTERED LIVESTOCK FROM TIARET AND SAIDA, NORTHWESTERN ALGERIA

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ABSTRACT

Livestock health and production have been significantly affected by hepatic fasciolosis - an infection caused by Fasciola spp. - which has had major veterinary and economic impacts. The objective of this investigation was to identify the frequency of fasciolosis infections in cattle and sheep slaughtered at the municipal abattoirs in Tiaret and Saïda, both located in Northwestern Algeria and to estimate the economic costs of the disease. Post-mortem examination of livers were performed on 459 animals (261 from Tiaret and 198 from Saïda) between September 2022 and April 2023. Overall prevalence of fasciolosis was determined to be 9.80% (45 of 459) with similar prevalence rates as 10.34% (27 of 261) in Tiaret and 9.09% (18 of 198) in Saïda. Approximately 123.5 kg of liver tissue that contained parasites were discarded (71 kg in Tiaret and 52.5 kg in Saïda) - representing substantial economic losses. While lower than many reports in Africa where prevalence may range from 30-70%, these values demonstrate a substantial impact. To date, we are unaware of any other studies assessing the prevalence and economic impact of Hepatic fasciolosis in cattle and sheep at municipal abattoirs in Tiaret and Saïda. The findings of this study provide a baseline for further investigation and emphasize the need for continued monitoring, enhanced control strategies, and greater farmer awareness to diminish the detrimental effect of fasciolosis on livestock productivity in Algeria.

Keywords: Abattoir, Algeria, cattle, Fasciola spp., hepatic fasciolosis, prevalence, sheep.

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ANALYSIS AND EVALUATION OF BIO-GLYCERIN PRODUCTION FROM COOKING OILS AND MODELING OF THE TRANSESTERIFICATION PROCESS: FROM WASTE TO SOURCE A NEW ECOLOGICAL APPROACH

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ABSTRACT

Waste cooking oil (WCO) represents a significant environmental challenge when improperly discarded but also an opportunity for valorization into high-value products. By combining field survey data with process simulation in Aspen Plus, this study examines the possibility of creating bio-glycerol from WCO collected in three Albanian cities: Tirana, Elbasan, and Korça. Approximately 3,750 liters of WCO, or about 3,450 kg of feedstock, were found to be available for valorization during a six-month survey. The transesterification process, comprising pre-treatment, reaction, methanol recovery, and glycerol purification, was modeled using Aspen in this particular situation. The results show that ~359 kg of high-purity glycerol (≥99%) and ~3,485 kg of biodiesel may be produced from the assessed WCO quantities, with methanol recovery scale 99%. The results demonstrate the strategic importance and technological viability of WCO valorization in Albania, providing the twin advantages of industrial self-sufficiency and waste management. The study comes to the conclusion that small-to-medium-sized transesterification facilities, along with organized WCO collecting systems and encouraging regulations, might provide a sustainable domestic bio-glycerol supply and lessen Albania's reliance on imports.

Keywords: waste cooking oil (WCO), transesterification, bio-glycerol, aspen plus simulation, methanol recovery, biodiesel, Albania, circular economy, renewable resources.

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SUSTAINABLE TOURISM AND AQUATIC ECOSYSTEMS: WATER QUALITY MONITORING IN THE BUNA RIVER

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ABSTRACT

Physico-chemical and microbiological monitoring of the Buna River was conducted from March to September 2025 at four stations: Former Fishing Area, Old Buna Bridge, Zues, and Darragjat, in order to assess seasonal variations in water quality and the influence of anthropogenic activities. The investigated parameters included water temperature, pH, dissolved oxygen (DO), and *Escherichia coli* as an indicator of microbiological contamination. Water temperature exhibited a clear seasonal pattern, increasing from 11.1–14°C in March to a maximum of 26.3°C in July–August, followed by a slight decline in September. pH values remained within the optimal ecological range (6.8–7.8) at most stations, indicating good buffering capacity and low chemical disturbance, while temporary extreme alkalinity (up to 11.8) was observed at Old Buna Bridge during spring, suggesting short-term anthropogenic impact. Dissolved oxygen concentrations varied between 6.0 and 12.0 mg/L, showing a strong inverse relationship with water temperature, with summer values approaching ecological stress thresholds. *Escherichia coli* concentrations ranged from 17 to 89 MPN/100 mL, with consistently higher summer values and spatial maxima at Old Buna Bridge, indicating localized fecal contamination pressure. Although microbiological values remained within WHO and EPA guideline limits, the observed seasonal increases reflect heightened contamination risks during the peak tourism period. Overall, the Buna River demonstrates generally good water quality and ecological stability; however, urban-influenced zones require continuous monitoring and targeted management to prevent long-term degradation and to support sustainable tourism development and ecosystem protection.

Keywords: sustainable tourism, *Escherichia coli*, temperature, pH, dissolved oxygen, Buna River.

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PROFESSIONAL READINESS, ROLE PERCEPTION, AND WORK-RELATED WELL-BEING IMPLICATIONS OF NURSING INFORMATICS ROLES: EVIDENCE FROM A DEVELOPING HEALTHCARE SYSTEM

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ABSTRACT

Aim: The aim of this study is to evaluate nurses' knowledge, perceptions and readiness to adopt the role of IT Nurse. *Methodology:* This quantitative, descriptive-analytical, cross-sectional study was based on a structured questionnaire which was administered to 475 nurses and nursing students in the municipality of Shkodra. Analyses included descriptive statistics, chi-squared tests, Spearman correlations and binary logistic regression to identify factors associated with readiness for specialisation. *Results:* The results revealed high levels of role recognition (59.2%), readiness for application (54.7%), and robust institutional support (91.4%). Institutional factors and the perceived practical value of the role were stronger predictors of readiness for specialisation than demographic characteristics. While well-being was not directly measured, the findings imply that role clarification, reduction of technological burden and increased professional self-efficacy could have a positive impact on professional well-being. *Conclusions:* This study highlights the need for the formalisation of institutional roles, the development of standardised curricula, and structural investments. It provides empirical evidence to inform policy-making and strategic planning in nursing informatics in Albania.

Keywords: Nursing informatics, IT Nurse, Nurse Informaticist, professional readiness, digital health, role clarity, professional well-being.

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ENVIRONMENTAL GOVERNANCE AS THE FOUNDATION FOR SOCIETAL SAFETY: AN INTEGRATED APPROACH TO THREATS IN THE ENERGY, TRANSPORT, AND RESOURCE SECTORS

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ABSTRACT

This article investigates the legal and policy instruments required to address core environmental threats—including climate change, biodiversity loss, pollution, and illegal resource extraction—as fundamental determinants of societal safety and sustainable development. To identify strategic priorities, a sociological survey (n=1,727) was conducted, revealing a significant public prioritization of environmental concerns within the security discourse, with foremost attention to water resource quality, emissions control, and waste management. The scientific and practical significance of the findings lies in formulating concrete proposals for modernizing legal and governance frameworks. The proposed recommendations aim to enhance environmental governance, strengthen ecosystem protection, and advance sustainable resource management as prerequisites for long-term societal stability. By integrating empirical public perception data, this research provides a practice-oriented foundation for updating policies and improving the regulatory framework for ecological security.

Keywords: environmental security, ecological governance, sustainable resource management, climate change adaptation, energy transition, environmental policy, societal resilience.